

What is claimed is:

1. An AV data transmitter comprising:

a plurality of receiver key signals with each of which AV data including a voice and a picture is encrypted and each of which is set for each AV data receiver permitted to communicate with the AV data transmitter, wherein

the AV data transmitter selects one of the receiver key signals according to the AV data receiver, to which the AV data transmitter is to transmit the AV data, from among the plurality of receiver key signals as a data communication key signal, encrypts the AV data with the selected data communication key signal, and transmits the AV data to the AV data receiver.

2. The AV data transmitter according to claim 1, wherein

when the AV data transmitter receives a changeover request signal for requesting that the data communication key signal be changed over to one of the receiver key signals according to the AV data receiver from the AV data receiver, the AV data transmitter determines that the AV data receiver which has transmitted the changeover request signal is the AV data receiver permitted to communicate with the AV data transmitter, and

when the AV data receiver is the AV data receiver permitted to communicate with the AV data transmitter, the AV data transmitter changes over the receiver key selected as the data communication key signal to the one receiver key signal according to the AV data receiver

and transmits the AV data encrypted with the correspondingly changed data communication key signal to the AV data receiver which has transmitted the changeover request signal.

3. An AV data transmitter comprising:

an encryption unit which encrypts AV data including a voice and a picture;

a first key signal storage unit which stores a data communication key signal used when the encryption unit encrypts the AV data;

a transmission/reception unit which transmits the AV data and which transmits/receives data; and

a key signal changeover control unit which stores a plurality of receiver key signals set according to a plurality of AV data receivers permitted to communicate with the AV data transmitter, respectively, and which changes over a data communication key signal in the first key signal storage unit, wherein

when the transmission/reception unit receives a changeover request signal for requesting that the data communication key signal be changed over to one of the receiver key signals according to one of the AV data receivers from the one AV data receiver, the AV data transmitter determines that the one AV data receiver which has transmitted the changeover request signal is one of the AV data receivers permitted to communicate with the AV data transmitter, and

when the one AV data receiver is one of the AV data receivers permitted to communicate with the AV data transmitter, the key signal

changeover control unit changes over the receiver key selected as the data communication key signal stored in the first key signal storage unit to the one receiver key signal according to the one AV data receiver.

4. The AV data transmitter according to claim 3, further comprising:

a first decryption unit which decrypts the data received by the transmission/reception unit with the data communication key signal stored in the first key signal storage unit, wherein

the changeover request signal is encrypted with the one receiver key signal according to the one AV data receiver which transmits the changeover request signal, and

by determining with which of the plurality of receiver key signals stored in the key signal changeover unit the first decryption unit can decrypt the changeover request signal received by the transmission/reception unit, the AV data transmitter determines whether the one AV data receiver which has transmitted the changeover request signal is one of the AV data receivers permitted to communicate with the AV data transmitter.

5. The AV data transmitter according to claim 3, further comprising:

a second decryption unit which decrypts the changeover request signal encrypted with a specific key signal common to the AV data transmitter and the AV data receivers permitted to communicate with the

AV data transmitter, wherein

by determining whether the second decryption unit can decrypt the changeover request signal received by the transmission/reception unit with the specific key signal, the AV data transmitter determines whether the one AV data receiver which has transmitted the changeover request signal is one of the AV data receivers permitted to communicate with the AV data transmitter.

6. The AV data transmitter according to claim 3, wherein when the AV data transmitter receives the changeover request signal and changes over the data communication key signal, the transmission/reception unit transmits a state change signal for changing an operation state of the one AV data receiver which includes the one receiver key signal that is to serve as the data communication key signal stored in the first key signal storage unit as the data communication key signal until changing over the data communication key signal.

7. The AV data transmitter according to claim 3, wherein the transmission/reception unit receives, from one of the AV data receivers, a change request signal for requesting that the receiver key signals stored in the key signal changeover control unit be changed, and when the AV data transmitter determines that the one AV data receiver which has transmitted the change request signal is one of the AV data receivers permitted to communicate with the AV data transmitter, the AV data transmitter changes the receiver key signal according to the

one respective AV data receivers and stored in the key signal changeover control unit to the receiver key signal recognized by the changeover request signal.

8. The AV data transmitter according to claim 3, wherein the AV data transmitter has a fixed mode in which the data communication key signal stored in the first key signal storage unit cannot be changed over.

9. The AV data transmitter according to claim 8, wherein assuming that a changeover determination signal for determining whether the data communication key signal in the first key signal storage unit can be changed over is transmitted from the one AV data receiver, and that

the transmission/reception unit receives the changeover determination signal,

when the changeover determination signal is transmitted from the one AV data receiver permitted to communicate with the AV data transmitter and the AV data transmitter is not in the fixed mode, the transmission/reception unit transmits a communication permission signal indicating that the one AV data receiver can communicate with the AV data transmitter, and

when the changeover determination signal is transmitted from the one AV data receiver permitted to communicate with the AV data transmitter and the AV data transmitter is in the fixed mode, the

transmission/reception unit transmits a communication prohibition signal indicating that the one AV data receiver cannot communicate with the AV data transmitter.

10. The AV data transmitter according to claim 9, wherein when the transmission/reception unit receives the changeover determination signal, the AV data transmitter determines the AV data receiver that is currently transmitting the AV data based on the data communication key signal stored in the first key signal storage unit and transmits information on the one AV data receiver thus determined together with the communication permission signal or the communication prohibition signal.

11. The AV data transmitter according to claim 9, wherein when the transmission/reception unit receives the changeover determination signal and the changeover determination signal is transmitted from an AV data receiver which is not permitted to communicate with the AV data transmitter, the AV data transmitter transmits a non-communication target signal indicating that the AV data receiver is not a communication target receiver.

12. The AV data transmitter according to claim 3, wherein the AV data transmitter sets an AV data transmission period in which the AV data is transmitted for each cycle, and receives the changeover request signal in a period other than the AV data

transmission period in the cycle.

13. An AV data receiver comprising:

a receiver key signal with which received AV data that is transmitted from an AV data transmitter and that includes a voice and a picture is decrypted, wherein

the AV data receiver transmits a changeover request signal for requesting that a key signal be changed over to the receiver key signal of the AV data receiver as a data communication key signal for encrypting the AV data, to the AV data transmitter which permits the AV data receiver to communicate with the AV data transmitter by storing the receiver key signal of the AV data receiver as one of a plurality of receiver key signals.

14. An AV data receiver comprising:

a transmission/reception unit which receives encrypted AV data such as a picture or a voice and which transmits/receives data;

a first decryption unit which decrypts the AV data;

a first key signal storage unit which stores a receiver key signal with which the first decryption unit decrypts the AV data; and

a data generation unit which generates the data to be transmitted, wherein

the data generation unit generates a changeover request signal for requesting that a key signal be changed over to the receiver key signal of the AV data receiver as a data communication key signal for encrypting

the AV data, and the transmission/reception unit transmits the changeover request signal to the AV data transmitter which permits the AV data receiver to communicate with the AV data transmitter by storing the receiver key signal of the AV data receiver as one of a plurality of receiver key signals.

15. The AV data receiver according to claim 14, further comprising:

an encryption unit which encrypts the signal generated by the data generation unit with the receiver key signal stored in the first key signal storage unit, wherein

the changeover request signal generated by the data generation unit is encrypted with the receiver key signal by the encryption unit and transmitted from the transmission/reception unit.

16. The AV data receiver according to claim 14, further comprising:

an encryption unit which encrypts the signal generated by the data generation unit with a specific key signal common to the AV data transmitter and the AV data receiver permitted by the AV data transmitter to communicate with the AV data transmitter, wherein

the changeover request signal generated by the data generation unit is encrypted with the specific key signal by the encryption unit and transmitted from the transmission/reception unit.



17. The AV data receiver according to claim 16, further comprising:

a second decryption unit which decrypts a signal other than the AV data received by the transmission/reception unit with the specific key signal.

18. The AV data receiver according to claim 14, wherein when the data communication key signal is changed over in the AV data transmitter and the AV data receiver receives the AV data from the AV data transmitter before the data communication key signal is changed over, the transmission/reception unit receives a state change signal for changing an operation state of the AV data receiver from the AV data transmitter and the operation state of the AV data receiver is changed.

19. The AV data receiver according to claim 18, wherein when the transmission/reception unit receives the state change signal, the AV data receiver controls an operation state of an external device including an AV data reproduction apparatus, which reproduces the AV data and which is connected to the AV data receiver by a cable, to be changed.

20. The AV data receiver according to claim 14, wherein when the AV data receiver is operated to be turned on, the data generation unit generates the changeover request signal, the

transmission/reception unit transmits the generated changeover request signal, and an external device including an AV data reproduction apparatus, which reproduces the AV data and which is connected to the AV data receiver by a cable, is turned on.

21. The AV data receiver according to claim 14, further comprising:

a key signal generation unit which generates the receiver key signal, wherein

the receiver key signal generated by the key signal generation unit is applied to the data generation unit, the data generation unit generates a change request signal for requesting that the receiver key signal stored in the AV data transmitter be changed over to the receiver key signal generated by the key signal generation unit, and the transmission/reception unit transmits the generated change request signal.

22. The AV data receiver according to claim 14, wherein the data generation unit generates a changeover determination signal for determining whether the data communication key signal of the AV data transmitter can be changed over, and the transmission/reception unit transmits the generated changeover determination signal.

23. The AV data receiver according to claim 22, further comprising:

a communication state determination unit which indicates that communication can be held when the transmission/reception unit receives a communication permission signal transmitted from the AV data transmitter and indicating that the communication can be held, and which indicates that the communication cannot be held when the transmission/reception unit receives a communication prohibition signal transmitted from the AV data transmitter and indicating that the communication cannot be held.

24. The AV data receiver according to claim 22, wherein when the transmission/reception unit receives a communication permission signal transmitted from the AV data transmitter and indicating that communication can be held, the AV data receiver controls an AV reproduction apparatus connected to the AV data receiver by a cable so as to display a notification that the communication can be held, and

when the transmission/reception unit receives a communication prohibition signal transmitted from the AV data transmitter and indicating that communication cannot be held, the AV data receiver controls the AV reproduction apparatus so as to display a notification that the communication cannot be held.

25. The AV data receiver according to claim 24, wherein the transmission/reception unit receives information representing the AV data receiver to which the AV data transmitter is currently

transmitting the AV data as well as the communication permission signal or the communication prohibition signal, and the AV data receiver controls the AV reproduction apparatus so as to display the AV data receiver to which the AV data transmitter is currently transmitting the AV data.

26. The AV data receiver according to claim 23, wherein when the transmission/reception unit receives a non-communication target signal indicating that the communication is prohibited from the AV transmitter which has received the changeover determination signal, the communication state determination unit shows that the AV data receiver is a non-communication target receiver.

27. The AV data receiver according to claim 24, wherein when the transmission/reception unit receives a non-communication target signal indicating that the communication is prohibited from the AV transmitter which has received the changeover determination signal, the AV data receiver controls the AV reproduction apparatus so as to display the notification that the AV data receiver is a non-communication target receiver.

28. The AV data receiver according to claim 14, wherein the AV data receiver sets an AV data transmission period in which the AV data is received for each cycle, and transmits the changeover request signal in a period other than the AV data transmission period in

the cycle.

29. An AV data wireless communication system comprising:  
an AV data transmitter which includes a plurality of receiver key signals with each of which AV data including a voice and a picture is encrypted and each of which is set for each AV data receiver permitted to communicate with the AV data transmitter, which selects one of the receiver key signals according to the AV data receiver to which the AV data transmitter is to transmit the AV data from among the plurality of receiver key signals as a data communication key signal, which encrypts the AV data with the selected data communication key signal, and which transmits the AV data to the AV data receiver; and  
an AV data receiver which decrypts the AV data to be received.

30. The AV data wireless communication system according to claim 29, wherein

the AV data receiver transmits a changeover request signal for requesting that the data communication key signal be changed over to one of the receiver key signals according to the AV data receiver,

when the AV data transmitter receives the changeover request signal, the AV data transmitter determines that the AV data receiver which has transmitted the changeover request signal is the AV data receiver permitted to communicate with the AV data transmitter,

when the AV data transmitter determines that the AV data receiver which has transmitted the changeover request signal is the AV data

receiver permitted to communicate with the AV data transmitter, the AV data transmitter changes over the receiver key selected as the data communication key signal to the one receiver key signal according to the AV data receiver, and

the AV data transmitter transmits the AV data encrypted with the correspondingly changed data communication key signal to the AV data receiver which has transmitted the changeover request signal.

31. The AV data wireless communication system according to claim 30, wherein

the changeover request signal is encrypted with the one receiver key signal.

32. The AV data wireless communication system according to claim 30, wherein

the changeover request signal is encrypted with a specific key signal common to the AV data transmitter and the AV data receiver permitted by the AV data transmitter to communicate with the AV data transmitter.

33. The AV data wireless communication system according to claim 29, wherein

when the AV data transmitter changes over the receiver key selected as the one data communication key signal to a first receiver key signal according to a first AV data receiver which has transmitted the

changeover request signal,

then the AV data transmitter transmits a state change signal for changing an operation state of a second AV data receiver to the second AV data receiver so as to change the operation state of the second AV data receiver according to a second receiver key signal used as the data communication key signal before changeover, and

the second AV data receiver receives the state change signal and the operation state of the second AV data receiver is changed.

34. The AV data wireless communication system according to claim 33, wherein

by turning on the first AV data receiver, the changeover request signal is transmitted.

35. The AV data wireless communication system according to claim 29, wherein

the AV data receiver changes the one receiver key signal, generates and transmits a change request signal, including the receiver key signal as information, for requesting that the one receiver key signal in the AV data transmitter be changed, and

when the AV data transmitter receives the change request signal, the AV data transmitter changes the one receiver key signal stored according to the AV data receiver which has transmitted the change request signal to the receiver key signal determined by the change request signal.

36. The AV data wireless communication system according to claim 29, wherein

the AV data receiver transmits a changeover determination signal for determining whether the data communication key signal can be changed over, and

when the AV data transmitter which has received the changeover determination signal determines that communication can be held, the AV data transmitter transmits a communication permission signal indicating that the communication can be held, and when the AV data transmitter which has received the changeover determination signal determines that communication cannot be held, the AV data transmitter transmits a communication prohibition signal indicating that the communication cannot be held.

37. The AV data wireless communication system according to claim 36, wherein

when the AV data receiver, which has transmitted the changeover determination signal, is not the AV data receiver permitted to communicate with the AV data transmitter, the AV data transmitter which has received the changeover determination signal transmits a non-communication target signal indicating that the AV data receiver is not a communication target receiver.

38. The AV data wireless communication system according to



claim 29, wherein

an AV data transmission period in which the AV data is transmitted/received for each cycle is set, and

the changeover request signal is transmitted/received in a period other than the AV data transmission period in the cycle.